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Abstract:

Our research explores two major factors that impact the generalizability of keypoint estimation models to more difficult data. Specifically, we focus on in-the-wild antelope images captured from motion-triggered camera traps in Senegal, West Africa.

The first major factor we will focus on is how our model's performance changes based on varied subsets of training data. To do so, we leverage the AP-10k dataset to explore different training strategies, such as whether training on a small subset of visually similar species helps the model generalize better.

Our second area of exploration is testing our keypoint labeling scheme, which is more rigorous than the labeling scheme of the AP10k dataset. Using our data, we created keypoint labels based on several different definitions – some are visually distinct, while others are more biologically correct. By training and testing with these different keypoint definitions, we want to explore what kind of keypoint definition helps the model generalize better. Our results improve keypoint detection for animals and, in a broader sense, contribute to the abundance estimation of animals in the wild.

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